

CLAIMS

1. An elevator rail joint detecting device characterized by comprising:

a joint detecting portion opposed to a guide rail, which has a plurality of unit rails vertically connected to each other, and provided to a car guided by the guide rail, for detecting presence of a joint between each of the unit rails; and

a joint determining portion for determining presence/absence of the joint based on information from the joint detecting portion.

2. An elevator rail joint detecting device according to Claim 1, characterized in that:

the joint detecting portion has a light projecting portion for irradiating a light beam to a surface of the guide rail, and a light receiving portion for receiving a part of a reflected light beam of the light beam irradiated to the joint, the light receiving portion being placed to avoid interference with an optical path of a reflected light beam of the light beam as specularly reflected by the surface of the guide rail; and

the joint determining portion determines the presence/absence of the joint based on information on an amount of light received by the light receiving portion.

3. An elevator rail joint detecting device according to Claim 1, characterized in that:

the joint detecting portion has: a light irradiating portion for irradiating a plurality of light beams to a surface of the guide rail; a plurality of light receiving portions, each for receiving a part of a reflected light beam of each of the light beams irradiated to the joint, the plurality of light receiving portions each being placed to avoid interference with an optical path of a reflected light beam of each of the light beams as specularly reflected by the guide rail; and an imaging optical system for imaging each of the reflected light beams to each of the light receiving portions; and

the joint determining portion determines the presence/absence of the joint based on information on an amount of light received by each of the light receiving portions.

4. An elevator rail joint detecting device according to Claim 2 or 3, characterized in that the light projecting portion irradiates the light beam in a direction perpendicular to the surface of the guide rail.

5. An elevator rail joint detecting device according to Claim 2 or 3, characterized in that:

a polarization direction of the light beam irradiated from

the light projecting portion is P-polarization; and
an incident angle of the light beam on the surface of the guide
rail is a Brewster angle.

6. An elevator apparatus characterized by comprising:
 - a guide rail having a plurality of unit rails that are vertically connected to each other;
 - a car guided by the guide rail;
 - a rail joint detecting device having: a joint detecting portion opposed to the guide rail and provided to the car, for detecting presence of a joint between each of the unit rails; and a joint determining portion for determining presence/absence of the joint based on information from the joint detecting portion;
 - a car position detecting portion for detecting a position of the car;
 - a car position correcting portion for correcting information on the position of the car from the car position detecting portion based on information from the joint determining portion; and
 - a control device for controlling operation of an elevator based on information on the position of the car from the car position correcting portion.